Amendments to the Claims:

The following claims will replace all prior versions of the claims in this application (in the unlikely event that no claims follow herein, the previously pending claims will remain):

1. (Currently Amended) An electro-absorption optical modulator comprising:

an absorption layer;

upper and lower clad layers formed on upper and lower portions of the absorption layer, respectively; and

electrodes for applying an electric field to the absorption layer,

wherein the absorption layer has a vertical combination of at least two quantum wells having a width different from each other;

wherein the at least two quantum wells include a first quantum well having a narrow width and a second quantum well having a wide width, the absorption layer having at least one of the first quantum well and at least one of the second quantum well at a number ratio of m > n, where m is the number of first quantum wells and n is the number of second quantum wells; and

wherein an α value of the first quantum well is larger than an α value of the second quantum well.

2. (Cancelled)

3. (Currently Amended) The electro-absorption optical modulator as claimed in claim ~~2~~ 1, wherein ~~an~~ the α value of the first quantum well is larger than that of ~~an~~ the α value of the second quantum well in the following equation:

$$P_{out} = P_{in}\exp(-(V/V_0)^{a})$$

4. (Previously Presented) The electro-absorption optical modulator as claimed in claim 3, wherein the α value of the first quantum well is larger than that of the second quantum well by at least 0.5.

5. (Previously Presented) The electro-absorption optical modulator as claimed in claim 1, wherein the absorption layer includes a compound semiconductor base material.

6. (Original) The electro-absorption optical modulator as claimed in claim 1, wherein the lower clad layer is formed of a semiconductor substrate.

7. (New) An electro-absorption optical modulator comprising:

an absorption layer;

upper and lower clad layers formed on upper and lower portions of the absorption layer, respectively; and

electrodes for applying an electric field to the absorption layer,

wherein the absorption layer has a vertical combination of at least two quantum wells including a first quantum well having a narrow width and a second quantum well having a wide width, the absorption layer having at least one of the first quantum well and at least one of the second quantum well at a number ratio of m > n, where m is the number of first quantum wells and n is the number of second quantum wells; and

wherein an α value of the first quantum well is larger than an α value of the second quantum well in the following equation:

$$P_{out} = P_{in}\exp(-(V/V_0)^{\alpha})$$

8. (New) The electro-absorption optical modulator of claim 7, wherein the α value of the first quantum well is larger than that of the second quantum well by at least 0.5.

9. (New) The electro-absorption optical modulator of claim 7, wherein the absorption layer includes a compound semiconductor base material.

10. (New) The electro-absorption optical modulator of claim 7, wherein the lower clad layer is formed of a semiconductor substrate.

11. (New) An electro-absorption optical modulator comprising:

an absorption layer;

upper and lower clad layers formed on upper and lower portions of the absorption layer, respectively; and

electrodes for applying an electric field to the absorption layer,

wherein the absorption layer has a vertical combination of at least two quantum wells having a width different from each other;

wherein the at least two quantum wells include a first quantum well having a narrow width and a second quantum well having a wide width, the absorption layer having at least one of the first quantum well and at least one of the second quantum well at a number ratio of m > n, where m is the number of first quantum wells and n is the number of second quantum wells; and

wherein an α value of the first quantum well is larger than an α value of the second quantum well by at least 0.5 in the following equation:

$$P_{out} = P_{in}\exp(-(V/V_0)^{a})$$

12. (New) The electro-absorption optical modulator of claim 11, wherein the absorption layer includes a compound semiconductor base material.

13. (New) The electro-absorption optical modulator of claim 11, wherein the lower clad layer is formed of a semiconductor substrate.